Goodness of Fit: Alzheimer’s Disease and Related Dementias and the Chronic Disease Management Framework

A Discussion Paper Based on an Experts' Workshop

RGP central

Alzheimer Society

Brant - Halton and Norfolk - Huron - Hamilton
Niagara - Waterloo - Wellington Buffalo
With appreciation to:

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www.pfizer.co
Dear Reader,

We are pleased to share this report that describes how care for persons with Alzheimer’s Disease and Related Dementias (ADRD) and support for their informal caregivers can be furthered by construing health and social support interventions within the Chronic Disease Management framework.

We wish to acknowledge the partnership between the Alzheimer Society of Ontario and the Regional Geriatric Program, Central in designing and hosting the workshop. This report derives from advice offered by experts in many fields who gave of their time before, during and after the workshop. Their enthusiasm and active participation is much appreciated. Diane Harris facilitated the workshop and produced the draft of the proceedings. Several additional people read the drafts and made important comments. Thanks to them as well.

If you wish more information about this material, please contact staff@alzheimeront.org.

Yours truly,

Linda Stebbins                          David Jewell
CEO, Alzheimer Society of Ontario   Director, RGPc and Centre for Studies in Aging
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Goodness of Fit: Alzheimer Disease and Related Dementias and the Chronic Disease Management Framework

Who are we?

On January 29, 2007 at St. Peter's Hospital, Hamilton a group of leading health practitioners spent the day in dialogue exploring the merits of applying the Chronic Disease Management (CDM) framework to Alzheimer’s Disease and Related Disorders (ADRD) and to sketch out a model.

The event was sponsored by the Alzheimer Society of Ontario and the Regional Geriatric Program, Central, with the support of Pfizer.

An initial draft of this paper was circulated to participants for further comment; it was then circulated to several additional professionals who were asked to comment and further revisions were made.

Why are we doing this?

The Alzheimer Society of Ontario is launching 4 pilot projects called First Link aimed at strengthening collaboration between primary care providers and community-based services for persons with ADRD, especially in the early stages of the disease (Appendix A). An underlying component of this new initiative is to investigate how this ADRD intervention may be facilitated through the chronic disease management framework. This approach will facilitate communication between primary care practitioners and community services and contribute to a more coordinated response to persons who have dementia and other chronic health conditions.

With early diagnosis, better diagnostic tools and resources, increasing research efforts and the present availability of drug therapies for patients in the early and middle stages, there is a need for an increased emphasis on early detection for memory loss, increased education and support for the patient and their family member and increased awareness by allied health professionals of the needs and community resources available to assist the patient and family members. Many individuals and families affected by dementia find it difficult to ask for help and frequently do not access support until a crisis situation arises¹. Families may not know who to call or what to ask for. Many health care providers are challenged in their capacity to respond.

Why now?

ADRD is one of the most significant health issues of our time, now and for the next 40 years or more. By 2016, the number of Ontarians with ADRD will increase by 33% to 206,000². Many of the Integrated Health System Plans published by Local Health Integration Networks (LHINs)³ identify elder care issues and chronic disease management as priorities within their plans, yet connections between these approaches are not evident in many instances. This may be the case

³ LHIN http://www.health.gov.on.ca/transformation/lin/lhin_mn.html
because of the absence of a conceptual framework for how this population (frail elderly) can be served with a CDM framework.4

Current demographic and system utilization data indicate a pressing need for better strategies to proactively manage chronic conditions. Appendix E contains an extract of a recent document produced by Ontario’s Alzheimer Strategy Transition Project, which cites several studies describing the immense social, health and economic impact of ADRD.

With the growth of Family Health Teams and Community Health Centres, a more robust and organized primary care system is emerging in Ontario with new opportunities for collaboration and partnerships among those serving people with complex chronic diseases.

Who did we invite?

21 people participated in the dialogue and contributed to the ongoing development of this discussion paper.

Dialogue was enriched due to the diverse participants’ backgrounds and broad geographic representation. Included in the dialogue from both urban and rural centres were people from: Family Health Teams (FHT), Family Physicians, LTC nurse practitioners, Mental Health and Addictions, Community Care Access Centre, Psychogeriatric Resource Consultant, Knowledge Management, Alzheimer Chapters, Diabetes Care, Osteoporosis Programs. For participant list see Appendix B; Dr. Nick Kates and Dr. Brian Misiaszek were the key expert presenters.

What were participants asked to do?

The workshop aspired to produce a draft for an integrated model of care for persons with ADRD within a CDM framework that will:

• Facilitate communication between primary care practitioners and community services.
• Contribute to a more coordinated clinical response to persons who have dementia and other chronic health conditions.

In preparation for the workshop, participants had pre-reading assignments, a case study and websites to review (Appendix C).

The workshop furthered a shared understanding of the CDM framework through two presentations (available on the RGPc website: www.rgpc.ca)

• Dr. Nick Kates provided a summary of the chronic disease management model. His presentation included practical examples of how care is enhanced using this conceptual framework.
• Dr. Brian Misiaszek outlined the salient features of comprehensive geriatric assessment and included screening, diagnosis, treatment, recommendations and follow-up.

Large group dialogue followed the presentations to reach consensus regarding an integrated model of care. Participants were encouraged to envision the future state; key elements of a model emerged and are described under “What did we learn?”

Small group work focused on components of a planning framework, already proven to make an impact during early phases of transformation, to an integrated model.

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The majority of persons with ADRD live in the community either independently or with informal supports. In Ontario, in 2005, Community Care Access Centres (CCAC) served 127,000 people for periods of greater than two months, 16% of these people were diagnosed with ADRD, “Nearly two thirds live with their primary caregiver, almost always a spouse or adult child” (A Profile of Ontario’s Home Care Clients with ADRD. ASO and ideas for health. University of Waterloo. April 2005).

A Note on ADRD

Alzheimer’s disease is a progressive, degenerative disease of the brain, which causes thinking and memory to become seriously impaired. It is the most common form of dementia. (Dementia is a syndrome consisting of a number of symptoms that include loss of memory, judgment and reasoning, and changes in mood, behaviour and communication abilities. Related diseases include: Vascular Dementia, Frontotemporal Dementia, Creutzfeldt-Jakob Disease and Lewy body Dementia.)

As Alzheimer’s disease progresses and affects different areas of the brain, various abilities become impaired. The result is changes in abilities and/or behaviour. At present, once an ability is lost, it is not known to return. However, research is now suggesting that some relearning may be possible.

Alzheimer’s disease eventually affects all aspects of a person’s life: how he or she thinks and acts. Since individuals are affected differently, it is difficult to predict the symptoms each person will have, the order in which they will appear, or the speed of the disease’s progression.

www.alzheimer.ca
1. Foundational Concepts: CDM and Comprehensive Geriatric Assessment (CGA)

Chart 1 - Chronic Care Model\textsuperscript{5}

CDM Model\textsuperscript{6}:

- Fosters productive interactions between the informed patient and family who are actively involved in their care and providers who are part of proactive practice teams with resources and expertise.
- Applies to a variety of chronic illnesses and target populations.
- Advances desired outcomes for healthier patients, more satisfied providers and cost savings.
- Includes key elements: the community, the health system, self-management support, delivery system design, decision support and clinical information systems (see model next page).
- Promotes evidence-based change concepts with each of the key elements.


\textsuperscript{6} Wagner EH. (1998). Chronic disease management: What will it take to improve care for chronic illness? Effective Clinical Practice. 1:2-4
Chart 2 - Comprehensive Geriatric Assessment
(See Appendix D for Details)

- Provides a systematic comprehensive evaluation of an older adult using validated screening instruments.
- Pays attention to the medical problems and how the patient’s cognition, mood and the home situation affect him or her.
- Pays special attention to cognitive and mental health issues and screening for any problems.
- Guides selection of interventions to restore or preserve function (not cure).
- Monitors clinical change over time.
- Draws upon a range of disciplines.

CDM has the potential to increase awareness of the need for comprehensive geriatric assessment and can improve the management of co-morbid conditions. The symptoms related to chronic disease, as well as the incidence of single and co-morbid conditions increase in old age. ADRD interventions can be strengthened in the early stages by more readily connecting primary care to specialized services, enhancing the role of the caregiver in co-managing a disease process and supporting primary care looking out for caregiver issues, as the person with ADRD is treated.

Ongoing care becomes the role of primary care. Also, it should be noted that since some chronic conditions are risk indicators for dementia, comprehensive care would suggest that screening should be ongoing for linked conditions. An example is the triad of diabetes, vascular disease and dementia. Several models of comprehensive primary care of the elderly with complex conditions have evolved in several parts of the United States (PACE sites) and in Canada, including Edmonton (CHOICE) and Quebec (PRISMA). It is noteworthy that the latter project has developed 8 protocols for care to support a team approach for comorbidities.

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7 Provided by Dr. Brian Misiaszek
8 http://www.academyhealth.org/connectingthedots/aging.pdf
9 http://www.capitalhealth.ca/ProgramsAndServices/BrowseServicesByAlpha/Content.htm?IA_ID=1001469
10 http://www.cihr-irsc.gc.ca/e/30670.html
The next part of the workshop involved a presentation by Nick Kates of a model being developed for Family Health Teams to guide how these concepts can be applied in a primary care setting. The model sets out certain overall functions undertaken in primary care settings. Under each function, related actions, resources, tools and practices are outlined. For example, in patient ‘Self-Management’, goal-setting is an initial activity but the primary care provider and patient need to anticipate relapses and how they will respond. Patient education is needed and information and resources made available. This model also helps identify specific points of collaboration/intersection between primary care and specialist or community resources to assist in patient care.

**Chart 3 Clinical Planning/Implementation Framework**

<table>
<thead>
<tr>
<th>Screening/ Detection</th>
<th>Treatment</th>
<th>Follow-up/ Monitoring</th>
<th>Self Management</th>
<th>IT Support</th>
<th>Decision Support</th>
<th>Community Links</th>
<th>Organizational Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider Preparation</td>
<td>Algorithm</td>
<td>Telephone</td>
<td>Goals</td>
<td>Registry</td>
<td>Algorithm</td>
<td>Key Partners</td>
<td>Goals</td>
</tr>
<tr>
<td>Screening Instruments</td>
<td>Case Management</td>
<td>Registry</td>
<td>Plan/Relapse Prevention</td>
<td>Templates</td>
<td>Provider Education</td>
<td>Agencies in Primary Care</td>
<td>Team Creation</td>
</tr>
<tr>
<td>Patient Information</td>
<td>Specialist Consultation</td>
<td>Reminders</td>
<td>Education</td>
<td>Targets</td>
<td>Policy</td>
<td>EMR</td>
<td></td>
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<tr>
<td>Practice Review</td>
<td>Prepared Appointment</td>
<td>Provision of Resources/Aids</td>
<td>Health Passport</td>
<td>Training</td>
<td>Change Management</td>
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**CDM-ADRD Integrated Model: Key Elements**

Dialogue resulted in a wide-range of suggestions for constructing a model of ADRD intervention within a CDM framework. Emerging themes:

a. **CDM framework**

Consensus of the group was to test the use the CDM framework and to adapt it to Ontario. As various teams apply it, their first-hand experience with its utility, will offer an opportunity to evaluate its strengths and limitations.

The group suggested further thought is required to ensure the Model takes into account (1) other morbidities ADRD patients may suffer (2) opportunities for family health teams in terms of screening and diagnosis given the limited number of geriatricians (3) strategies for making it practical to use in long-term care settings (4) the role of the LHINs in increasing information sharing. As well, given the limited coverage of FHTs and Community Health Centres (CHC), consideration must be given to the model’s application in traditional primary care settings.
b. **Self-management and caregiver support**

Consensus of the group was that self-management is a paradigm shift for both patient and provider and considered relatively new in Ontario. The key concept of patient and caregiver (in the case of ADRD) was discussed including issues related to teams developing strategies starting with the patient’s goals. The group acknowledged the various perceptions people have as to the role of a primary care expert and how the increasing use of the internet will continue to change the types of information patients and families have access to and their expectations.

In the future, the group felt it would be important to explore new methods and approaches to education for patients regarding self-management, as well as education to providers regarding how to engage patients in self-management and preparing caregiver(s) for change. The unique role of caregiving in the ‘self-management model’ as it applies to ADRD needs further study. Suggesting questions to patients and caregivers to ask providers would be a good first step.

Developing a balance between patient and provider responsibility with informed empowered consumers and prepared teams was identified as a key component of the approach. For example, providing patients with access to medical records would improve understanding and communication.

c. **Community Links**

The group agreed that an important step in developing the model would be to integrate directly or indirectly through referral, as many resources in to health teams as possible; this would include an inventory of services within communities to assist with the development of partnerships, identification of gaps and duplication.

Although privacy legislation can be a challenge for community agencies working effectively together, the group felt that this system level barrier was not insurmountable with collaborative efforts.

d. **Delivery System Design**

The group discussed developing systems at the primary care level to enable collaboration with specialists for various co-morbidities so that providers are not working at cross-purposes. Strengthening communication between specialized resources and FHTs would be a good first step which would include better understanding of each discipline’s role, responsibilities, expertise, etc. Learning from successes in collaborative efforts, such as the use of the *Dementia Tool Box: Education Resources for Family Physicians*[^11] with family physicians in Ottawa, would be a useful step forward.

e. **Decision Support**

The group advised that the use of multidisciplinary teams and assessments, evidenced-based care and learning how to develop outcome measures as a team would assist with decision support.

Practical suggestions included teams packaging information so that geriatricians could benefit from workups and specialized geriatric services in turn providing primary care providers with information to manage clients over the longer term.

f. Clinical Information Systems

Advancing information technologies were thought to provide ongoing opportunities for advancing the use of the Model. The intensity of activity in so many primary care settings, the ‘rush’, needs to be alleviated in order to maximize provider/patient interaction. Information management tools can help correct the balance. Sharing information with the patient and team through the use of a “Health Passport” (with current medical information including recent test results) was felt to be a strong start point for moving the model forward. The group also suggested that in the future, the development of prompting files could be useful in reminding patients and team about services, and additional care opportunities.

g. Health System

To prepare providers for the change to a CDM framework and use of health teams, the group discussed the need to integrate a geriatric focus into the CDM approach. They felt that interventions to deal with ambivalence to change would be a key component to implementing the model along with adjusting the CDM approach rather than pushing a specific treatment (e.g. selling benefits to specific practice). Designated care coordinators were also identified as an important component of making the model work.

Implementation of the model was also discussed in the context of starting with dementia care and then building with other provincial initiatives (e.g. delirium and depression).

How do we move ahead?

Consensus was to begin work with the suggested planning/implementation framework (page 6, chart 3 above). Participants worked through three elements proven to help with early phases of change and action: (1) Early Detection (2) Follow-up and Monitoring (3) Decision Support.

Emphasis was on knowing where we want to be 5 to 10 years out and beginning to find starting points toward this end.
<table>
<thead>
<tr>
<th><strong>Screening/Detection</strong></th>
<th><strong>Follow-up/ Monitoring</strong></th>
<th><strong>Decision Support</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider preparation</td>
<td>Telephone</td>
<td>Algorithm</td>
</tr>
<tr>
<td>• Review chart(s), case histories prior to patient contact</td>
<td>• Community pharmacy role – reminders, compliance, recommendations to seek follow-up</td>
<td>• Content and process</td>
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<tr>
<td></td>
<td></td>
<td>• Flowsheet for primary care practitioners – exist for other diseases (e.g. diabetes)</td>
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<td></td>
<td></td>
<td>• Remuneration based on flowsheet/ checklist completion</td>
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<td></td>
<td></td>
<td>• Better attention to guidelines for diagnosis and management – presented concisely/simplified, user friendly for individuals, families, and providers</td>
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<tr>
<td></td>
<td></td>
<td>• Locally adaptable and relevant</td>
</tr>
<tr>
<td><strong>Screening Instruments</strong></td>
<td>Registry</td>
<td>Provider education</td>
</tr>
<tr>
<td>• Tools exist through Alzheimer Society chapters, Regional Geriatric Programs and other specialized geriatric resources</td>
<td>• IT support; will need to consider IT access and privacy</td>
<td>• Provider education by specialists to prepare frontline staff (may include pharmacists, family, etc)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Remuneration for specialists when teaching</td>
</tr>
<tr>
<td><strong>Assessment Tools</strong></td>
<td>Routine Recall</td>
<td>Specialist Access</td>
</tr>
<tr>
<td>• Assessment and screening tools exist for more comprehensive assessment</td>
<td></td>
<td>• Specialist access (esp. in rural areas)</td>
</tr>
<tr>
<td>• Develop outreach process for at risk patients</td>
<td></td>
<td>• Use of IT such as videoconferencing</td>
</tr>
<tr>
<td><strong>Patient Information</strong></td>
<td>Reminders</td>
<td>Targets</td>
</tr>
<tr>
<td>• Identify key risk factors for patients at risk for dementia</td>
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<tr>
<td><strong>Practice review</strong></td>
<td></td>
<td></td>
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<tr>
<td>• Office staff trained on how to review patient charts/ audits</td>
<td></td>
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<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
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<tr>
<td>• Memory screening clinics?</td>
<td></td>
<td></td>
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<tr>
<td>• “Elder Watch” type programs</td>
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</tbody>
</table>
What are the key messages?

1. A model of ADRD intervention within a CDM framework is potentially beneficial and should be tested.

2. The use of an ADRD-CDM model warrants further development so it can improve patient and provider communication and result in a shared, more comprehensive understanding of the person and his or her caregivers and their goals.

3. The model provides structure and an expectation for a fuller exchange of information and comprehensive management of co-morbidities.

4. The model can broaden the understanding of the vital contribution of community resources; it also opens the door to shift thinking to prevention and health promotion.

5. The time is right. Opportunities are now present to create new and more effective strategies for working between primary care and community care.

6. The task may seem overwhelming; yet, participants agree with such a compelling vision, a planning framework, and small steps – change is inevitable. Start with the model and adapt to the various practices – ask, “What can I do and who should I link with?”

7. Using a common approach to care may encourage primary care providers to continuously increase expertise in elder care through closer working relationships with specialized geriatric services.
Appendix A: First Link

Introduction

The Alzheimer Society of Ontario (ASO) with funding from the MOHLTC to initiate a 24 month project to enable select Alzheimer Society Chapters to partner with primary care practitioners in providing early intervention services to persons recently diagnosed with the disease and their families.

The Service Intervention

The First Link program receives referrals from primary care and specialized services and in turn links the person with dementia and their family to coordinated learning and support from diagnosis through the continuum of the disease. The program strengthens linkages between diagnosing physicians, diagnostic and treatment services and community service providers.

First Link provides the following:

- Care coordination: (see Service Intervention above)
- Dementia education training sessions: for family physicians provided by physician experts; for allied health professionals through collaboration with community partners; for patients and family members through the Alzheimer Society
- Providing active follow-up and monitoring of patients and their family caregivers to assist in reducing the number of patient crises and family caregiver stressors and overall help in improving quality of life.

Referrals are received from primary care providers (or CCAC) and First Link staff contacts the family. Services may be provided by telephone, at the primary care site, the family home, chapter offices or other suitable places.
Appendix B: Participants – January 29, 2007 ADRD-CDM Workshop

Lucia Cheung Mississauga CCAC, (Peel Primary Care Project)
Esther Coker St. Peter’s Hospital, Hamilton
Marg Eisner Alzheimer Chapter, Ottawa
Randi Fine Older Persons’ Mental Health and Addictions Network of Ontario
Pauline Fisher Fracture Think Osteoporosis Program, Hamilton Health Sciences
Sandy Haist Trillium Health Centre, Toronto
Pam Hamilton Psychogeriatric Resource Consultant, Kingston
Andy Hurtubise Family Physician - New Liskeard
Nick Kates Program Director, Hamilton Family Health Team
Janet MacLeod Diabetes Care and Research Program, Hamilton Health Sciences
Brian Misiaszek Michael G. DeGroote School of Medicine at McMaster
Tom Perkin Family Physician – Chatham/Kent
Susan Rivers Knowledge Management, St. Peter's Hospital, Hamilton
Lynne Withers Nurse Practitioner LTC, Sarnia/Lambton

Planners and Observers

Dianne Anderson Alzheimer Strategy Transition Project, Alzheimer Society of Ontario
Silver Chan Pfizer
Cathy Conway Alzheimer Society of Ontario
David Harvey Alzheimer Society of Ontario
Diane Harris Learning & Performance Consultant
David Jewell Regional Geriatric Program central and Centre for Studies in Aging,
Lynn Sage Regional Geriatric Program central
Carrie McAiney Dept. of Psychiatry & Behavioural Neurosciences, McMaster University.
Geriatric Psychiatry Service, St. Joseph’s Healthcare Hamilton
Appendix C: Participant Preparation


Websites

- http://www.nccconline.org/about/alzheimers.htm
Appendix D: 8 steps to a Comprehensive Geriatric Assessment

1. **Get the History:** interview both patient & collateral historians


3. **Functional Inquiry:** BADLs/IADLs, home situation & supports

4. **Physical Examination:** focus on CVS/Chest/Neuro/Gait

5. **Cognitive Testing:** use validated tools (i.e. SMMSE, Clock, Montreal Cognitive Assessment, Frontal Assessment Battery, etc.)

6. **Testing for emotional problems:** interview, GDS, caregivers.

7. **Targeted investigations:** blood work, EKG, neuro-imaging, etc.

8. **Impression & plan:** with follow-up & revision to plan if needed
## Appendix E: Cost Analysis

<table>
<thead>
<tr>
<th>Study</th>
<th>Estimated Cost in Year of Study</th>
<th>Estimated Cost in 2006</th>
<th>Estimated Cost in 2016</th>
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<tbody>
<tr>
<td><strong>Canada &amp; Ontario</strong></td>
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<tr>
<td>Net Economic Costs of Dementia in Canada (1991) (Ostbye &amp; Crosse) – incremental costs over those without</td>
<td>STUDY: 1991 - $40,000 per person - $3.8B for province</td>
<td>-$80,000 per person - $12.8B for province</td>
<td>- $130,000 per person - $27.3B for province</td>
</tr>
<tr>
<td>1991 study Relation between Severity of Alzheimer Disease and Costs of Caring (Canadian Medical Association Journal – 159(5): 457-465) (Hux; et. al.)</td>
<td>STUDY: 1991 - $22,000 per person - $2.2B for province</td>
<td>- $45,000 per person - $7.2B for province</td>
<td>- $73,000 per person - $15.3B for province</td>
</tr>
<tr>
<td>Statistics Canada Study2003</td>
<td>Found that of the 21 chronic conditions studied, Alzheimer’s disease had the greatest impact on quality of life with stroke following second with less than half the impact</td>
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<tr>
<td>Dementia in Ontario: Prevalence and Health Services Utilization-Tranmer, et.al.</td>
<td>Total health costs approximately 50% higher for people with dementia versus without</td>
<td></td>
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<tr>
<td>One in Ten Study - Study of the Costs and Outcomes of Home Care and Residential LTC Services - A Report Prepared for the: Health Transition Fund, Health Canada – February 2002 - National Evaluation of the Cost-effectiveness of Home Care – Centre of Aging – University of Victoria</td>
<td>Regardless of whether formal (public, i.e., government costs) care costs or both formal and informal (personal, private; i.e., out-of-pocket expenses, informal caregiver time) care costs were considered, the results were the same – Community Care was significantly less costly than Residential Care. When only formal costs were considered, home care costs were on average, about 50% of residential care costs. However, informal costs were considerable. When a societal approach was used, families were found to contribute one-half or more of overall care costs of home and community care, and approximately one-third of the overall care costs of facility care</td>
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<tr>
<td>Source</td>
<td>Description</td>
<td>Cost Range</td>
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<td>UK article from the Centre for the Economics of Mental Health, Institute of Psychiatry (December 2000)</td>
<td>The direct costs of Alzheimer's disease were estimated to be between 7-14B (in pounds), which was substantially less than stroke (3.2B) and heart disease (4B) and cancer (1.6B excluding informal care costs); Research expenditures on Alzheimer's disease were 57% of that of stroke, 10% of that of heart disease, and 3% of that of cancer</td>
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<td>Alzheimer Society – United Kingdom – Study released February 2007</td>
<td>-$58,000 per person (Cdn)</td>
<td>-$95,000 per person (Cdn)</td>
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<tr>
<td>Improving Caregiver well-being delays Nursing Home Placement of Patients with ADRD (American Academy of Neurology)</td>
<td>Current Study (2006) indicates that a psychosocial support program delays on average placement in Nursing Home for ADRD patients by 1.5 years. The cost savings per patient resulting from this delay results in a savings of $100,000 (US) per client. With approximately 5,000 new ADRD clients in Ontario each year this would result in a annual savings of $500M</td>
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<td>Howard Fillit – Director of the Institute for the Study of Aging and Clinical Professor of Medicine, MT Sinai Medical Centre NY</td>
<td>Noted that ADRD are the third most costly medical condition of the elderly, on a par with diabetes and cancer at $100B, exceeded only by heart disease at $183B</td>
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<tr>
<td>U.S. Alzheimer Association</td>
<td>The direct and indirect costs of Alzheimer's and other dementias amount to more than $148B annually, with a prevalence of 5M people. This means an average annual cost of $29,600 US. The medical costs of those with ADRD are more than double the amount of those without when one or more other chronic conditions, such as coronary heart disease and diabetes, is present</td>
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<tr>
<td>Projections of AD in the U.S. and the Public Health Impact of Delaying Disease Onset- Ron Brookmeyer, et. al</td>
<td>Annual per client costs (in 1990 figures) (including unpaid home care) are estimated at: $47,000 US – Study also showed how intervention could reduce the prevalence by up to 50% over the next forty – fifty years – a savings of $200B (in 1991S) annually.</td>
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<tr>
<td>“The Future Economic Burden of Dementia on Health and Social Services”. Ugeskr Laeger 2006 (Denmark)</td>
<td>The future demographic changes and an increasing number of people with dementia will result in a 30% increase in health and social service costs due to dementia.</td>
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<td>Georgia Study on Net Cost of ADRD on Medicaid (1994 data)</td>
<td>STUDY 1994 - $14,500 (US$) per person</td>
<td>- $26,200 (US$) per person</td>
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<tr>
<td>Social-economic Costs and Quality of life of AD in the Canary Islands, Spain – Julio Lopez-Bastida; et. al., 2006</td>
<td>- $36,000 (US$) per person</td>
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Appendix F: Bibliography

Chapman, D.P. ‘Dementia and Its Implications for Public Health. Preventing Chronic Disease’ [serial online] 2006 Apr. available from www.cdc.gov/pcd


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Wagner E.h. ‘Chronic Disease Management: What will it take to improve care for chronic illness?’ Effective Clinical Practice 1998: 12 (4)